

REMARKS

The applicants note that no boxes were checked in section 12 of the Office Action Summary. Thus, no acknowledgement of the claim for priority under section 119 and no notice that all of the certified copies of the priority documents were received in the parent application were provided. The parent application file shows that the examiner acknowledged receipt of the certified copies of the priority documents in the office action (restriction requirement) mailed on November 8, 2002.

The applicants acknowledge and appreciate receiving a copy of form PTO-1449, on which the examiner has initialed all listed items.

Claims 5 and 17-20 are pending. Claims 1-4 and 6-16 have been canceled. Claim 20 is new. The applicants respectfully request reconsideration and allowance of this application in view of the above amendments and the following remarks.

In paragraph 1 of the office action, the specification was objected to for failing to provide antecedent basis for the subject matter of claim 19. The specification has been amended as suggested by the examiner.

Paragraph 0000 of the specification has been amended to include the information suggested by the examiner regarding the parent application. Thus, the applicants respectfully request that the objections to the specification and disclosure be withdrawn.

Claim 5 was rejected under 35 USC 103(a) as being unpatentable over DeCapua *et al.* in view of Benjey *et al.* ('741). The applicants respectfully request that this rejection be withdrawn for the following reasons.

Claim 5 has been amended to recite that the cover and the connector portion are bonded to each other without inclusion by two-color molding. This amendment is supported by the description of paragraphs 0054, 0056, 0057, 0133 and 0135 in the original specification. No new matter has been added.

The cover of claim 5 is formed of a polyamide. The connector portion is formed of an adhesive polyethylene. The cover and the connector portion are bonded to each other without inclusion by two-color molding. Accordingly, the connecting interface between the cover and the connector portion is chemically bonded. Thus, the bond strength of the connecting interface is strong. The strong bond of the connecting interface prevents leakage of liquid fuel and vaporized fuel from the inside of a fuel tank to the outside through the connecting interface. In other words, leakage of fuel is prevented without using a sealing member or the like in the interface between the cover and the connector portion.

In column 3 of the patent to DeCapua *et al.*, the fuel tank 11 is described as being made of a high-density polyethylene (HDPE). It is also described that the weldable mount 12 is made of HDPE in the same section. It is further described that the weldable mount 12 is made of HDPE and can therefore be welded to the HDPE fuel tank 11.

In column 4 of the patent to DeCapua *et al.*, it is described that the weldable mount 12 includes an engaging portion 66. The engaging portion 66 is described as being configured to extend into a side-opening annular channel 68. That is, since the engaging portion 66 extends into the side-opening annular channel 68, the weldable mount 12 is engaged between the first housing portion 26 and the second housing portion 28. Also, an annular seal 24 is located between the weldable mount 12 and first housing portion 26.

Therefore, the weldable mount 12 and first housing portion 26 are separate component parts. Also, the weldable mount 12 and the first housing portion 26 are not bonded. Further, the annular seal 24 is located between the weldable mount 12 and first housing portion 26.

In column 4 of the patent to Benjey *et al.*, it is described that an annular downwardly extending flange 134 comprises HDPE material. In column 3 of Benjey *et al.*, it is described that the annular downwardly extending flange 134 is formed by overmolding after curing an outer portion of the flange 112. A potting compound 132 is received into an annular groove 130. The potting compound 132 is formed of fluorocarbon elastomer, which cures at room temperature. The potting compound 132 seals the annular groove 130.

Therefore, the annular downwardly extending flange 134 is overmolded after curing an outer portion of flange 112. Also, the potting compound 132 is placed between the annular downwardly extending flange 134 and the outer portion of flange 112.

It would not have been obvious to one of ordinary skill in the art to have combined the device described in DeCapua *et al.* with that of Benjey *et al.*, because there is nothing in common between the plastics indicated in DeCapua *et al.* and the plastics indicated in Benjey *et al.* That is, the patent to DeCapua *et al.* describes acetyl as an example of an engineering-grade plastic material. The patent to Benjey *et al.* describes aliphatic polyketone, polythalamine, polyamide, acetal, polyester, polyphenylene sulphide and glass filled polyamide as examples of an engineering-grade plastics material. These examples have nothing in common.

Further, in the patent to DeCapua *et al.*, the weldable mount 12 and first housing portion 26 are not bonded. The weldable mount 12 is merely engaged between the first housing portion 26 and the second housing portion 28 by an engaging portion 66. That is, the patent to DeCapua *et al.* discloses a method for attaching the weldable mount 12 by engagement.

Contrary to this, the annular downwardly extending flange 134 in the patent to Benjey *et al.* is attached to an outer portion of flange 112 by overmolding. That is, the patent to Benjey *et al.* discloses a method for attaching an annular downwardly extending flange 134 by overmolding.

The devices of the two references are completely different in their attachment methods. In addition, DeCapua *et al.* does not suggest attaching the weldable mount 12 by overmolding. Likewise, Benjey *et al.* does not suggest attaching an annular downwardly extending flange 134 by engagement.

As explained above, there is nothing in common between the example of engineering-grade plastic material indicated in the DeCapua *et al.* and the examples of a plastic material indicated in Benjey *et al.* Further, the methods for attaching the housings are different in the patents to DeCapua *et al.* and Benjey *et al.* Therefore, it would not have been obvious to have combined the teachings of the patents to DeCapua *et al.* and Benjey *et al.*

The examiner combined the art described in DeCapua *et al.* and Benjey *et al.* because the examiner had the knowledge that the cover of claim 5 in the present invention is made of a polyamide. That is, in order to satisfy the cover limitation of claim 5, the examiner combined Benjey *et al.*, which describes polyamide as the example of a plastics material, with DeCapua *et al.*, which also has the description of a plastics material. Absent the knowledge of claim 5, it would not have been obvious to have combined DeCapua *et al.* and Benjey *et al.*, since the two indicate no examples in common and the methods for attaching housing portions are different from each other. Thus, the combination of DeCapua *et al.* and Benjey *et al.* is the result of improper hindsight.

Even if the teachings of DeCapua *et al.* and Benjey *et al.* were properly combined, the limitations of claim 5 are not satisfied. DeCapua *et al.* does not disclose or suggest an adhesive polyethylene. Likewise, there is no description of an adhesive polyethylene in Benjey *et al.* Consequently, the attachment portion (the equivalent of the weldable mount 12 in DeCapua *et al.* and an annular downwardly extending flange 134 in Benjey *et al.*) of the valve that is formed by combining DeCapua *et al.* and Benjey *et al.* (hereinafter called the "combination valve") would be made of HDPE. The cover of the combination valve would be made of polyamide. However, HDPE and polyamide cannot be bonded together; accordingly, it is impossible to bond the attachment portion and the cover of the combination valve. The attachment portion and the cover will be attached by engagement, as taught by DeCapua *et al.* or by overmolding, as taught by Benjey *et al.*

Further, when the attachment portion and the cover cannot be bonded together, liquid fuel and vaporized fuel will leak from the inside of the fuel tank to the outside through the connecting interface. Here, the patent to DeCapua *et al.* discloses an annular seal 24, while the patent to Benjey *et al.* discloses a potting compound 132. Accordingly, the sealing performance of the combination valve would be secured by a sealing member, such as an annular seal 24 and a potting compound 132.

As mentioned above, the attachment portion and the cover of the combination valve will be attached by engagement or overmolding. Also, the combination valve would be sealed by a sealing member that is a separate component from the attachment portion and the cover.

However, the connector portion and the cover of the valve attached to the fuel tank are chemically bonded to each other according to claim 5. Accordingly, leakage of liquid fuel and vaporized fuel from the inside of a fuel tank to the outside through the connecting interface is

prevented without a separate seal member. That is, the sealing performance is secured by the connecting interface itself. Thus, it is not necessary to provide a sealing member between the cover and the connector portion.

In addition, the cover and the connector portion of claim 5 are bonded to each other by two-color molding. Two-color molding is a technique in which resin products are formed in one fixed mold using a molding machine that injects two kinds of resin. With two-color molding, it is possible to form a second resin part (for instance, a cover) immediately after having formed a first resin part (for instance, a connector portion). Therefore, it is possible to contact the first resin and the second resin in a state in which the surface of the first resin is clean. Also, it is possible to contact the first resin and the second resin at high temperature. Thus, when the cover and the connector portion are chemically bonded to each other by two-color molding, it is possible to secure strong and even bond strength over the entire connecting interface between the cover and the connector portion. Therefore, the device has a high-performance seal.

On the other hand, the overmolding of the patent to Benjey *et al.* is a so-called insert forming method. As mentioned above, an annular downwardly extending flange 134 of Benjey *et al.* is overmolded after curing a potting compound 132 in an annular groove 130. Consequently, the overmolding of Benjey *et al.* is not two-color molding. Neither of the patents to DeCapua *et al.* or Benjey *et al.* discloses or suggests two-color molding.

As mentioned above, even if the patents to DeCapua *et al.* and Benjey *et al.* are combined, neither discloses or suggests an adhesive polyethylene and two-color molding. Moreover, both of them describe a sealing member between the connector portion and the cover. Thus, even if DeCapua *et al.* and Benjey *et al.* are combined, the terms of claim 5 are not met.


Claims 17 and 18 depend on claim 5 and are thus considered to be patentably distinguished from the prior art of record for the reasons given above with respect to claim 5.

Claim 20 is new. Claim 20 is readable on the elected embodiment of Fig. 15. Claim 20 is essentially original claim 19 written in independent form, including the limitations of original claims 5 and 17. Original claim 19 was said to contain allowable subject matter; therefore, claim 20 is considered to be in condition for allowance.

In view of the forgoing, the applicants respectfully submit that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

Please charge any unforeseen fees that may be due to Deposit Account No. 50-1147.

Respectfully submitted,



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